EXISTING CONDITIONS

The Study Team conducted an extensive data collection effort to gain an understanding of existing conditions in the study area. In addition to collecting data for the quantitative assessment of existing conditions, the Study Team conducted field evaluations throughout the study area during peak and off-peak hours to further assist in the assessment of existing conditions. This section of the report summarizes the data collected for the study and addresses issues and deficiencies in the transportation infrastructure.

MAJOR ROADWAYS IN THE STUDY AREA

The study area, shown in Figure 1 is located in Northwest Washington, DC. This section of the report describes the characteristics of the principal streets in the study area.

M Street

M Street runs east-west through the study area. M Street in the study area is a one-way minor arterial with westbound traffic flow. It has a variety of parking conditions ranging from all-day parking to day off-peak hours parking. Depending on the parking restriction, M Street usually has one or two extra lanes during the peak hours. M Street in the study area has four to five lanes with one of the curb lanes used as a shared lane with traffic turning north or south. Between 22nd Street and 23rd Street, it has five lanes with the leftmost lane provided exclusively for traffic turning south onto 23rd Street. The speed limit on this street is 25 miles per hour (mph). There are no speed limit signs posted on M Street in the study area. Generally M Street has sidewalks on both sides of the road. M Street is often used by fire trucks, as there is a fire station located on M Street between 22nd and 23rd Streets.

L Street

L Street, designated as a minor arterial, runs through the study area as a one-way eastbound street. L Street has a variety of parking conditions from day off-peak hour parking to no parking during AM peak hours. There is no parking on the south side of L Street at any time during the day between 25th Street and 23rd Street, and on the north side, there is no parking during AM peak hours. For the remaining section of L Street, parking is allowed only during day off-peak hours. In general, L Street has three lanes with the curb lanes being a shared through-turn lane for the traffic turning north or south. L Street widens to accommodate four lanes between 22nd Street and 20th Street. In this section, the curb lanes are also shared between through and turning traffic. It has a posted speed limit of 25 mph. However between 22nd Street and 21st Street, it has a speed limit of 15 mph due to a school zone. Most of L Street has sidewalks on both sides of the road. There are a variety of commercial developments along L Street including a hospital, a library and a police station.

K Street

K Street, designated as a principal arterial, is one of the major corridors in the District of Columbia. It provides a connection for a large number of vehicles that travel from Virginia to the District via I-66 and the Whitehurst Freeway. K Street runs east-west through the study area as a two-way divided roadway with two lanes in each direction. K Street has service roads east of 25th Street. There are no service roads in the section of K Street under Washington Circle. Right turns are prohibited from the main roadway wherever the main roadway is accompanied by service roads. Generally day off-peak hours parking is allowed on the service roads. The Service roads generally include one travel lane and one lane used for parking during the day off-peak hours. There are sidewalks on both sides of the street. The posted speed limit is 25 mph on the main roadway. Westbound between 20th Street and 21st Street, the speed limit is 15 mph due to a school zone.

Pennsylvania Avenue

Pennsylvania Avenue is a two-way principal arterial with three lanes in each direction. It operates in the northwest to southeast direction. There is no parking on Pennsylvania Avenue between 24th Street and 22nd Street. Between 22nd Street and 21st Street, only day off-peak hours parking is allowed. On the south side of Pennsylvania Avenue between 25th Street and 24th Street, parking is not allowed during the AM peak hours. On the north side, parking is allowed during day off-peak hours. The posted speed limit is 25 mph. Development along Pennsylvania Avenue is primarily commercial. There are sidewalks on both sides of this street.

New Hampshire Avenue

New Hampshire Avenue runs northeast-southwest through the study area. The section northeast of the Washington Circle is designated as a minor arterial, and the section southwest of the circle is designated as a collector. Parking is allowed all day between 21st Street and M Street. Day off-peak hours parking is allowed between M Street and 22nd Street. As shown in Figure 2, south of Washington Circle, New Hampshire Avenue is a two-way, two-lane street with a landscaped median. Between Washington Circle and M Street, New Hampshire Avenue is one-way, operating in the northeast direction with three travel lanes during the AM peak hours and two lanes during all other hours. The posted speed limit is 25 mph. As shown in Figure 2, the segment between 24th Street and H Street has sidewalks on both sides of the road.

24th Street

24th Street is a narrow two-way, two lane, north-south undivided collector roadway. Parking is allowed at all times throughout 24th Street, except for segments between Pennsylvania Avenue and New Hampshire Avenue. There are many commercial

developments along 24th Street including a hospital, a library and hotels. The speed limit is 25 mph, but there are no speed limit signs posted on 24th Street in the study area.

Figure 2
New Hampshire Avenue South of Washington Circle

23rd Street

23rd Street is one-way with three southbound lanes north of Washington Circle and two-way with three lanes in each direction south of the circle. This street is designated as a principal arterial. At the approach to L Street, the leftmost lane is designated as an exclusive left turn lane. Only two lanes are available for southbound traffic at the northern approach to Washington Circle. Because a Metrorail station is located adjacent to 23rd Street and because this street traverses the George Washington University campus, a large number of pedestrians use the sidewalks along 23rd Street. Sidewalks are present on both sides of the roadway. The speed limit on this street is 25 mph. However, there are no speed limit signs posted on 23rd Street in the study area.

22nd Street

22nd Street is one-way northbound with three lanes throughout the study area. North of K Street, this street is designated as a minor arterial, and south of K Street 22nd Street is designated as a collector. Predominantly, parking is allowed during day off-peak hours on 22nd Street, south of K Street. Generally, parking is not allowed on 22nd Street north of K Street, except on the east side of 22nd Street between K and L Streets, where parking is not allowed during the PM peak hours. The posted speed limit is 25 mph.

21st Street

21st Street is a one-way southbound collector with three lanes throughout the study area. Predominantly, parking is allowed during day off-peak hours. The speed limit is 25 mph. However, the posted speed limit between K and M Streets is 15 mph due to the school zone designation.

20th Street

20th Street is generally one-way northbound with four lanes throughout the study area. This street is designated as a minor arterial. The curb lanes are exclusively for turning traffic except at the intersection of K Street where there the curb lanes are shared (through-turn) lanes. Predominantly, parking is allowed on both sides of the street during day off-peak hours. The speed limit is 25 mph, but there are no speed limit signs posted on 20th Street in the study area.

H Street

H Street is an undivided, two-way, east-west collector street with one lane in each direction throughout the study area. Parking is allowed at all times during the day. The speed limit is 25 mph, but there is no speed limit sign posted on H Street in the study area. Because this street traverses the George Washington University campus and is close to the Foggy Bottom metro station, a large number of pedestrians use the sidewalks along this street. There are sidewalks on both sides of the roadway.

I (EYE) Street

I Street is an undivided, two-way, east-west principal arterial with one lane in each direction throughout the study area. Parking is allowed at all times during the day. The speed limit is 25 mph, but there is no speed limit sign posted on I Street in the study area. Because this street traverses the George Washington University campus and is close to the Foggy Bottom metro station, a large number of pedestrians use the sidewalks along this street.

PUBLIC TRANSPORTATION

The Washington Metropolitan Area Transit Authority (WMATA) provides bus and metro rail service in the study area. As shown in Figure 3, the Foggy Bottom Metrorail Station is located in the study area. This station serves the Orange and Blue Metrorail lines. The proposed rezoning site is located a distance of 1,100 feet from the Foggy Bottom station. As shown in Figure 3, transit service in the vicinity of the rezoning site is extensive. Square 37 is within walking distance of more than 10 WMATA bus routes. The extensive transit service helps mitigate the traffic impacts associated with new development at the site.

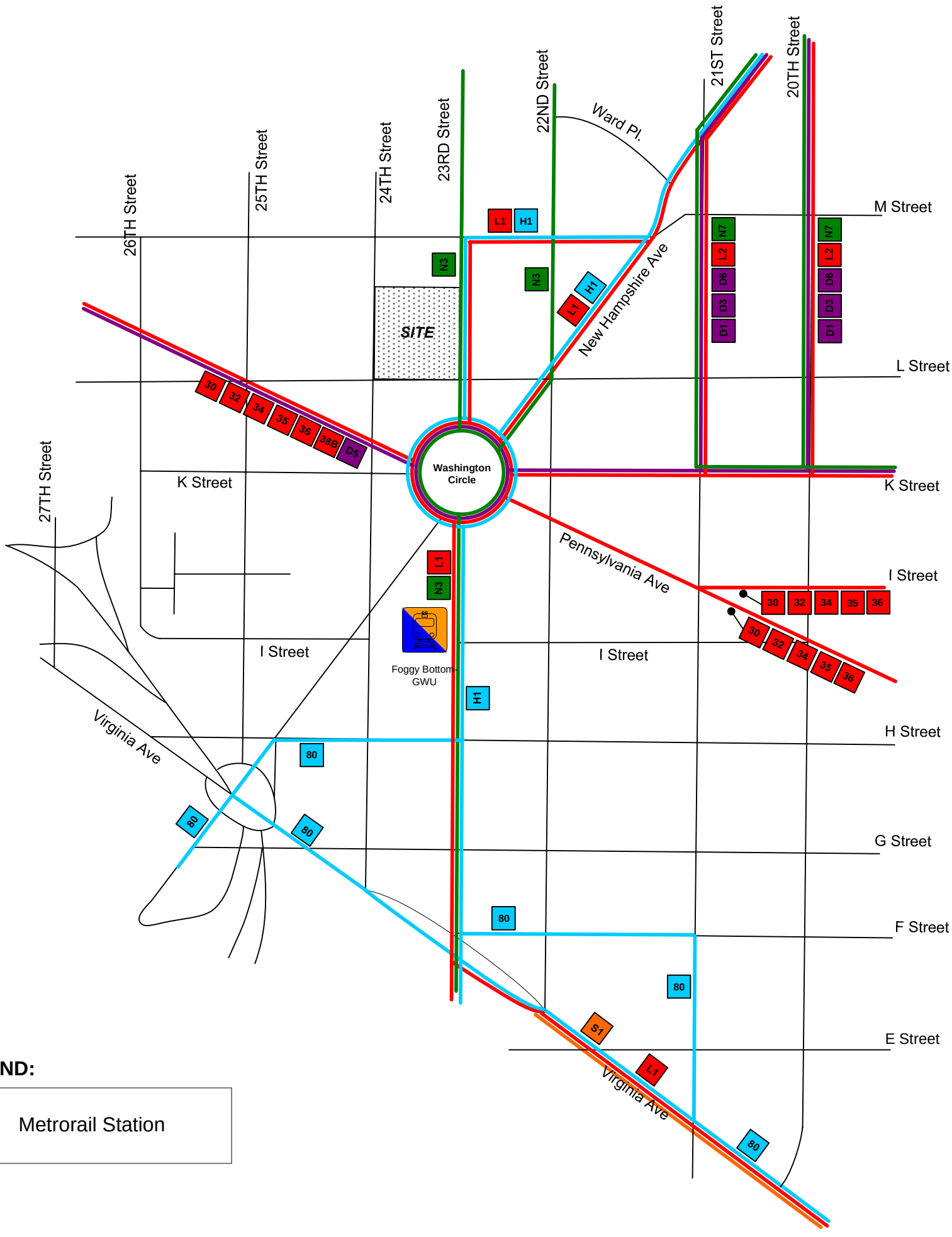
PARKING

There are several private parking garages in the study area to serve the existing off-street parking needs. There is, however, a significant demand for parking and many of the parking facilities are being utilized to capacity. Most of these parking facilities are located north of K Street. One of the commercial parking facilities is located at the proposed rezoning site.

On-street parking is available throughout the study area. The availability of on-street parking is much greater during off-peak hours. As shown in Figure 4, many of the blocks where there is no on-street parking or standing during the day are located in the immediate vicinity of the rezoning site. However, there are blocks in the study area where parking is allowed at all times during the day. For example, parking on M Street between 23rd and 25th Streets is allowed at all times during the day.

Some of the streets, such as sections of L Street, have parking restrictions during one of the peak periods only. However, as shown in Figure 4, most of the streets have parking restrictions during both the AM and PM peak hours.

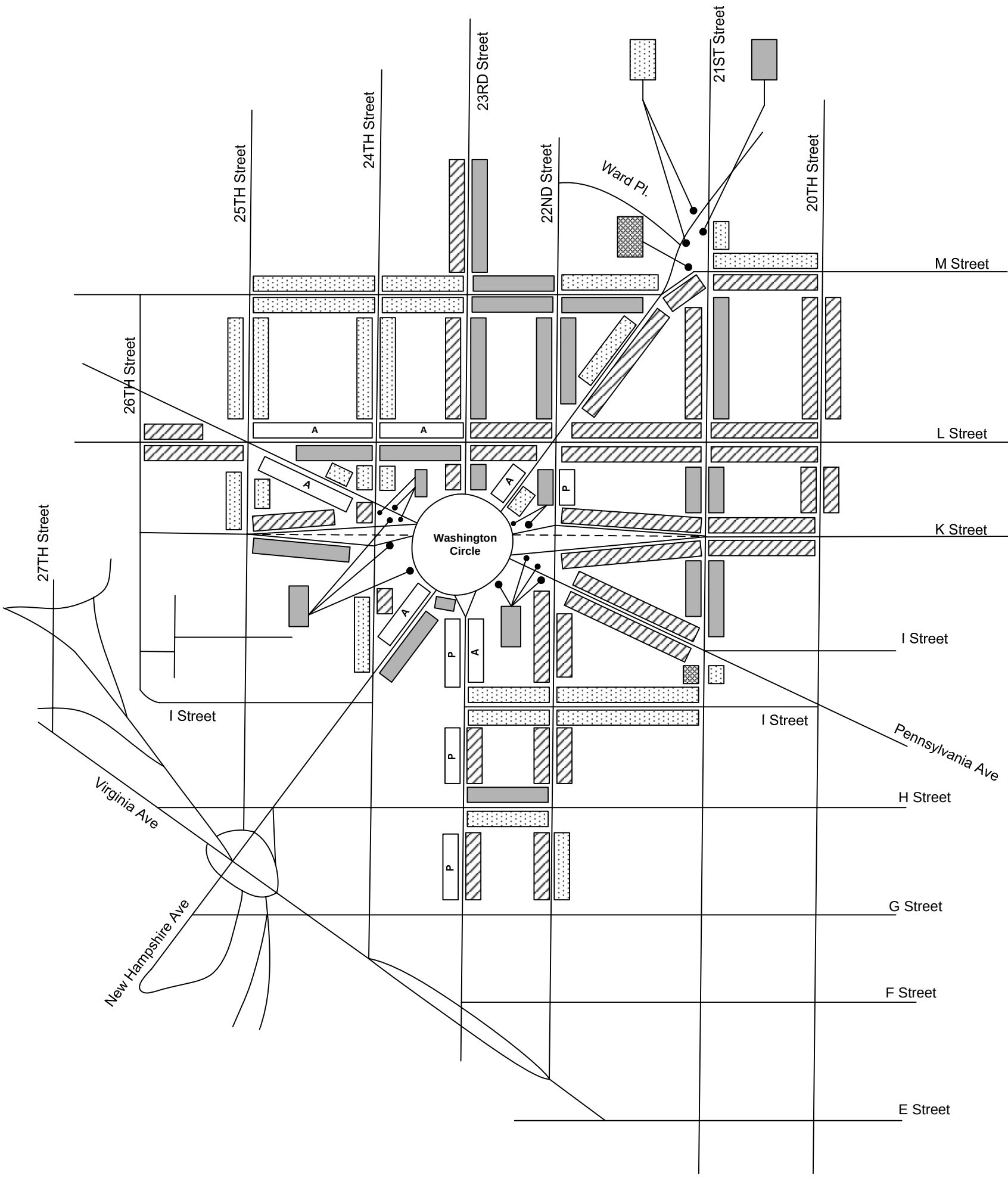
Route	Terminals
30/32	Friendship Heights Metro / Potomac Ave Metro
34/35/36	Friendship Heights Metro / Naylor Road Metro
D1	Glover Park / Union Station Metro
D3	Ivy City / Sibley Hospital
D5	Sangamor Road / Farragut N & W Metro
D6	Sibley Hospital / Stadium-Armory Metro
H1	Brookland-CUA / Potomac Park
L1	Chevy Chase Circle / Potomac Park
L2	Chevy Chase Circle / Mcpherson Square Metro
N3	Friendship Heights Metro / Federal Triangle Metro
N7	Montgomery Mall / Federal Triangle Metro
S1	16th Street / Potomac Park
80	Fort Totten Metro / Kennedy Center
38B	Ballston Metro / Farragut N & W Metro



LEGEND:

Metrorail Station

Not to Scale September, 2002	N	Square 37 Rezoning	**Bus and Metrorail Service**	FIGURE 3



LEGEND

- No Parking or Standing Day Peak and Day Off-Peak Hours
- Parking Allowed All Times During Day
- Parking Allowed Only During Day Off-Peak Hours. No Parking During Peak Hours
- A/P — No Parking During AM (A) or PM (P) Peak Hours
- Diplomat/Taxi/Tour Bus Parking

Notes:

1. Peak Hours are 7:00 AM - 930 AM and 4:00 PM - 6:30 PM

2. The parking restrictions shown in this graphic indicate the most prevalent parking restrictions on the block. Most of the streets have a variety of parking restrictions throughout the block.

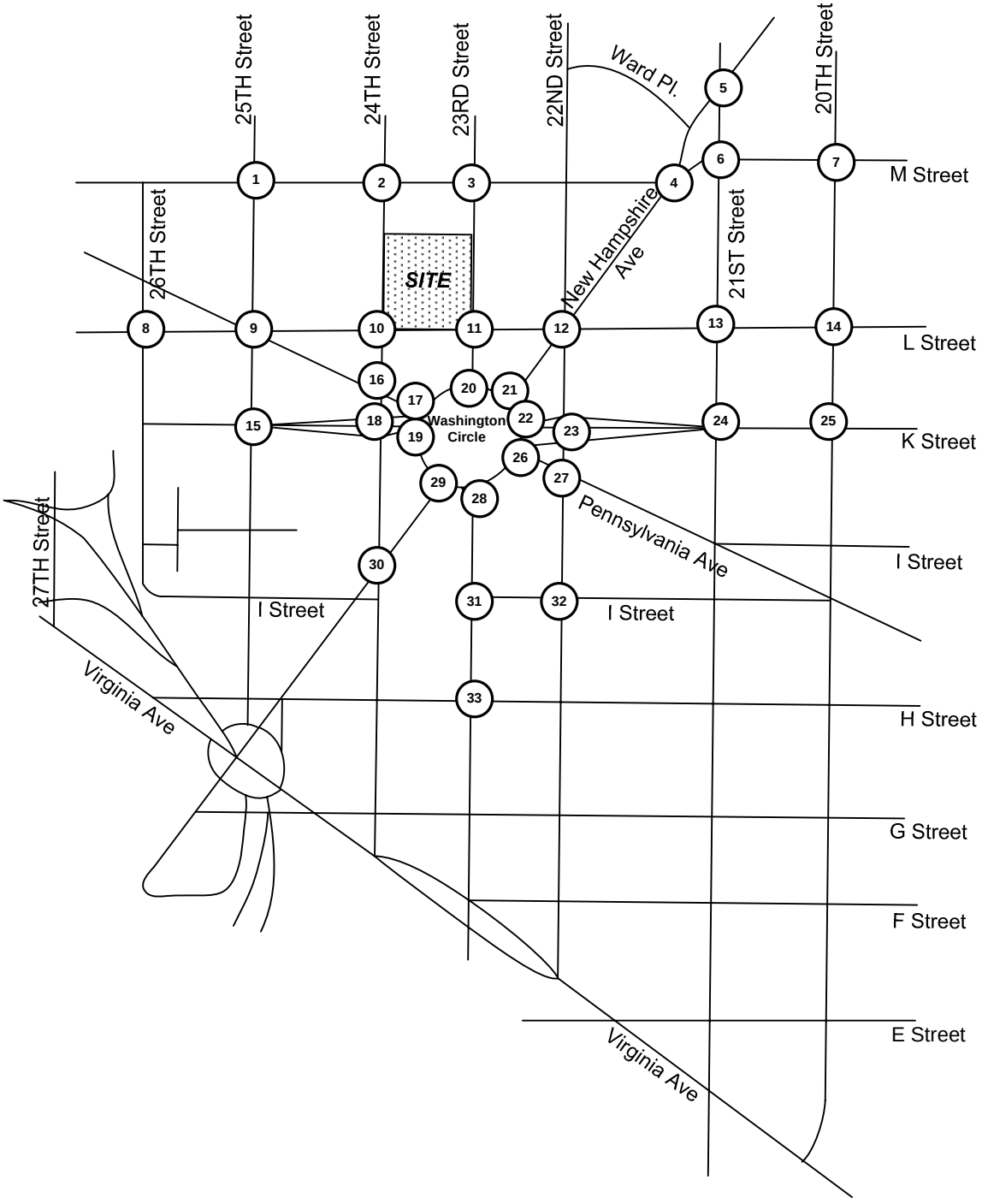
Not to Scale September, 2002	N	**Square 37 Rezoning**	**Day Time Parking Restrictions**	**FIGURE 4**

TRAFFIC VOLUMES

In order to evaluate existing traffic conditions throughout the study area, the Study Team collected turning movement counts at critical intersections during the peak periods. The following are the critical intersections where the Study Team collected turning movement count data (because all of the intersections in the study area are located in the northwest section of the District, the N.W. designation is omitted on the list):

1. M Street and 25th Street
2. M Street and 24th Street
3. M Street and 23 Street
4. M Street and New Hampshire Avenue
5. New Hampshire Avenue and 21st Street
6. M Street and 21st Street
7. M Street and 20th Street
8. L Street and 26th Street
9. L Street and 25th Street
10. L Street and 24th Street
11. L Street and 23rd Street
12. L Street and 22nd Street
13. L Street and 21st Street
14. L Street and 20th Street
15. K Street and 25th Street
16. Pennsylvania Avenue and 24th Street
17. Pennsylvania Avenue and Washington Circle Northwest
18. K Street and 24th Street
19. K Street and Washington Circle
20. 23rd Street and Washington Circle North
21. New Hampshire Avenue and Washington Circle Northeast
22. K Street and Washington Circle East
23. K Street and 22nd Street
24. K Street and 21st Street
25. K Street and 20th Street
26. Pennsylvania Avenue and Washington Circle Southeast
27. Pennsylvania Avenue and 22nd Street
28. 23rd Street and Washington Circle South
29. New Hampshire Avenue and Washington Circle Southwest
30. New Hampshire Avenue and 24th Street
31. I Street and 23rd Street
32. I Street and 22nd Street
33. H Street and 23rd Street

Figure 5 shows the location of these critical intersections.



Not to Scale	N	Square 37 Rezoning	Critical Intersections	FIGURE 5
September, 2002				

The counts were collected from the following sources:

1. New counts collected during the AM and PM peak periods, 7:00 AM - 9:00 AM and 4:00 PM - 6:00 PM, respectively, on a typical weekday (Tuesday, Wednesday or Thursday) during the month of December 2001.

2. "South of Dupont Circle Traffic Impact and Parking Study;" published by Traffic Services Administration District Department of Transportation District of Columbia; July 2001.

3. Traffic count data collected by the District Department of Transportation prior to December 2001.

Because all of the intersections were not counted the same day, there were minor discrepancies in the overall balance of traffic volumes throughout the study area network. The discrepancies are due primarily to traffic variations that occur from day to day. In order to improve the modeling of existing traffic conditions, the Study Team applied standard traffic engineering techniques to adjust the turning movement counts at intersections where unjustified imbalances were found. Figure 6 presents the existing, 2002, balanced peak hour turning movement counts for the study area. Appendix A presents the raw volume counts for the 33 intersections shown in Figure 6.

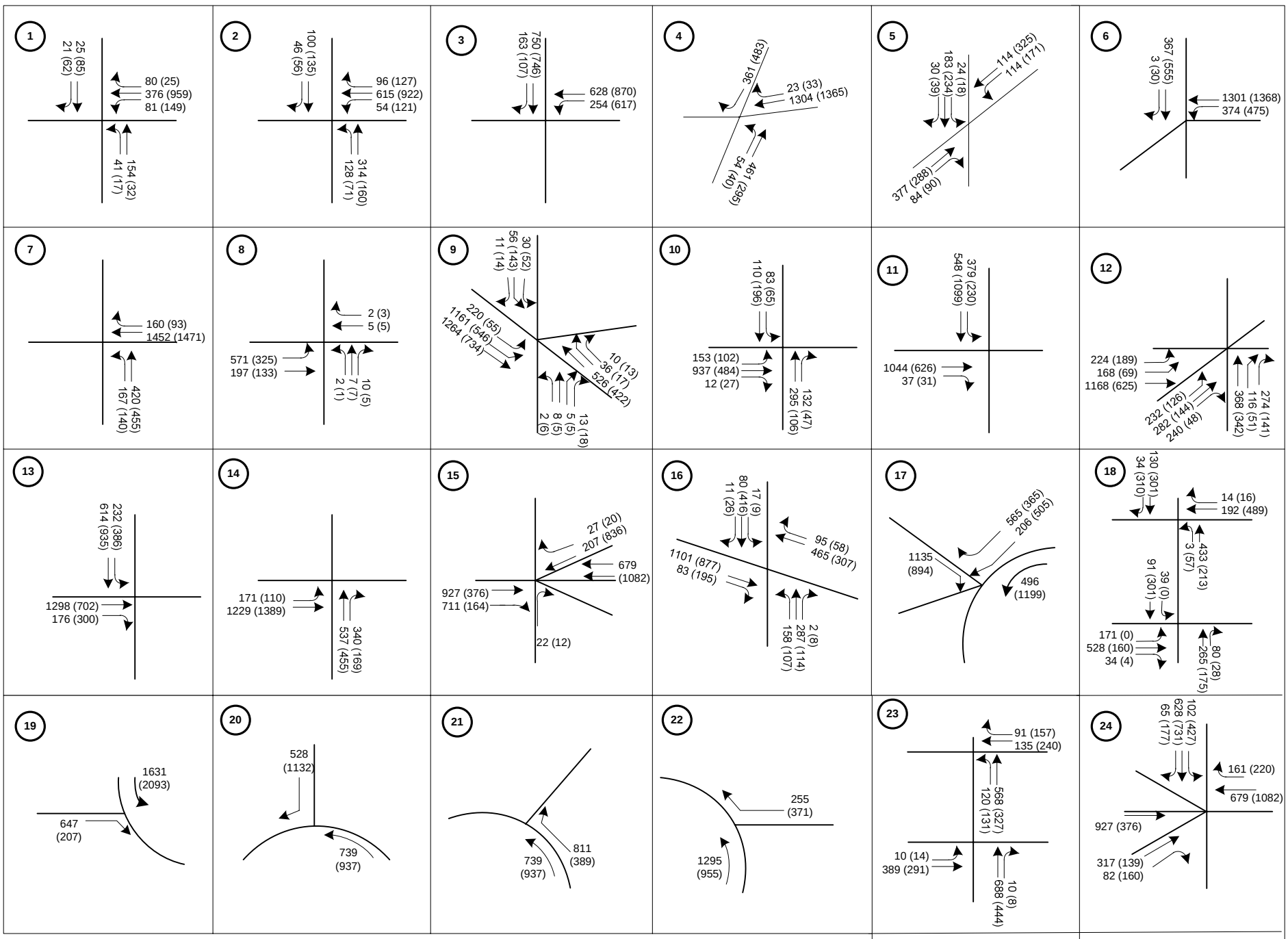
As Figure 6 indicates, the east-west streets with the highest volumes during the peak hours are K, L and M Streets. The north-south streets with the greatest peak hour volumes are 20th, 21st and 23rd Streets. Washington Circle is a critical element of the transportation infrastructure in the study area. The approaches to the circle with the largest volumes are the northern leg of 23rd street and the northwestern leg of Pennsylvania Avenue.

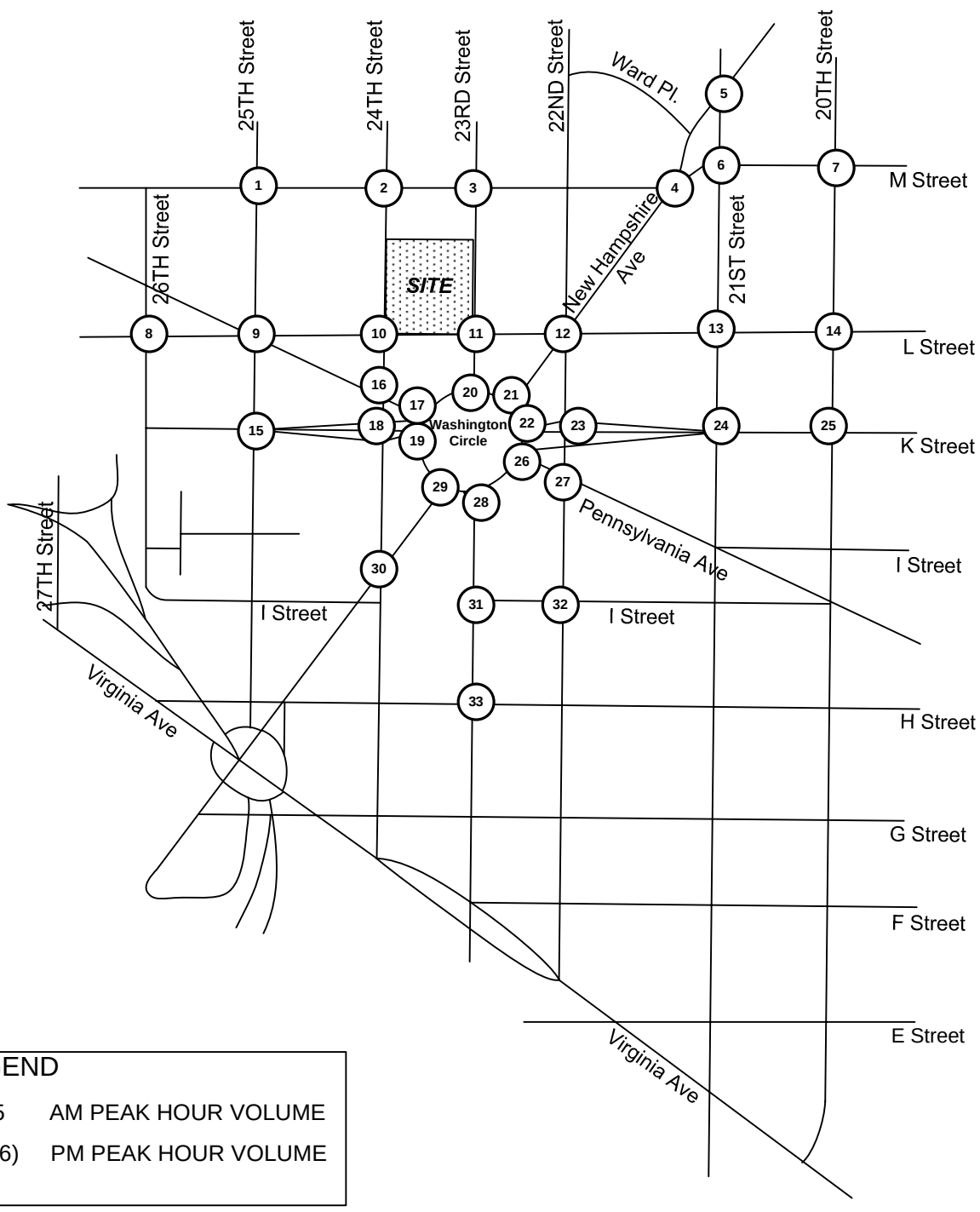
PEDESTRIAN COUNTS

The Study Team collected available information on AM and PM peak hour pedestrian volumes at the critical intersections. The pedestrian data was collected from the following sources:

1. District Department of Transportation Turning Movement Counts.

2. Critique and Analysis of the Transportation Impact Analysis (Gorove/Slade 11/4/98) for the Proposed George Washington University Replacement Hospital for Advisory Neighborhood Commission 2A, dated December 18, 1998.





LEGEND

385 AM PEAK HOUR VOLUME

(456) PM PEAK HOUR VOLUME

Not to Scale September, 2002	N	**Square 37 Rezoning**	**Existing (2002) AM and PM Peak Hour Volumes**	**FIGURE 6**

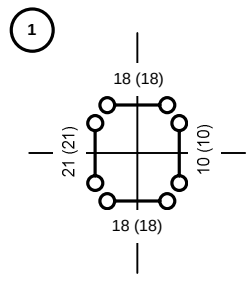
The pedestrian count data collected from the documents listed above are summarized in Appendix B. Because the documents listed above did not have pedestrian counts for all of the critical intersections identified in this study, the Study Team conducted spot counts and used engineering judgment to develop pedestrian counts for the intersections where the data was not available. Figure 7 summarizes the pedestrian movements used in the evaluation of traffic operations in the study area.

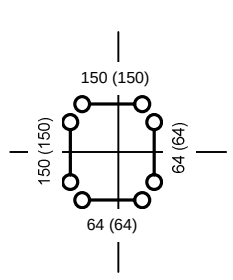
EXISTING LEVELS OF SERVICE

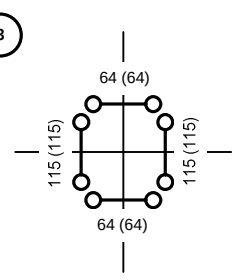
The Study Team used SYNCHRO, a traffic modeling/analysis program, to evaluate existing traffic conditions at the Critical intersections in the study area. For the evaluation, the Study Team entered existing traffic volumes, pedestrian counts, lane configurations, traffic control and signal timings into SYNCHRO to develop a base case, existing conditions model. SimTraffic, SYNCHRO's associated traffic simulation software, was used to assist in the development of a model that replicates accurately existing conditions. Figure 8 summarizes the lane configuration and traffic control for the study area intersections.

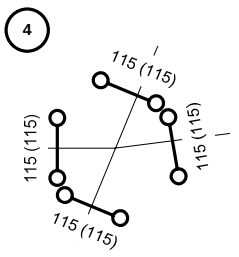
SimTraffic software results were used to calculate levels of service (LOS) for all the study area intersections. The LOS evaluation uses a six-letter grade scale (A to F) to rank the overall traffic handling ability of an intersection or a network. LOS A indicates excellent traffic operations with minimal delays. LOS F represents failing conditions with long delays and is considered undesirable. Appendix C provides a description of the different levels of service and their associated delays for both signalized and unsignalized intersections.

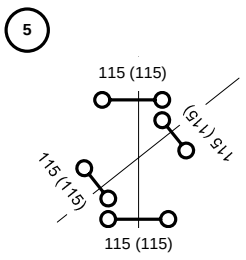
Generally, levels of service are worse during the PM peak hour than during the AM peak hour. As shown in Figure 9, most of the intersections in the study area that operate at congested LOS F during the AM peak hour also operate at congested LOS F during the PM peak hour. The only exception is the intersection of New Hampshire Avenue and L Street, which operates at LOS F during the AM peak hour but operates at LOS B during the PM peak hour. As Figure 9 indicates, several intersections along L Street, M Street and New Hampshire Avenue operate at adequate LOS during the AM peak hour, but operate at congested LOS F during the PM peak hour.

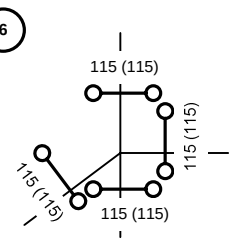


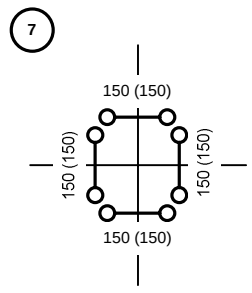


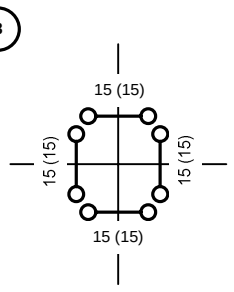


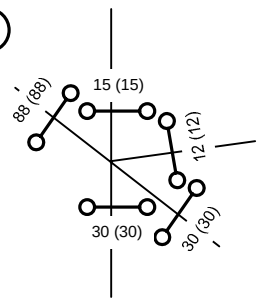


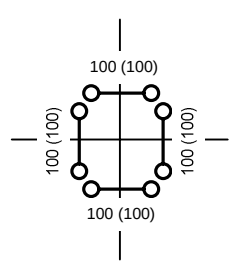


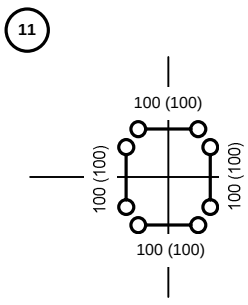


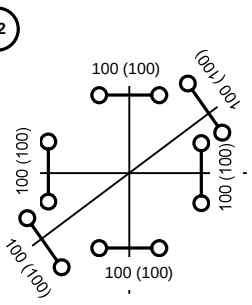


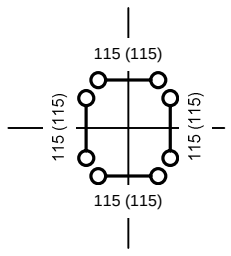


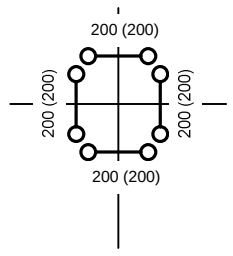


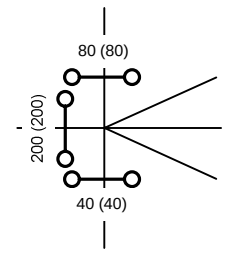


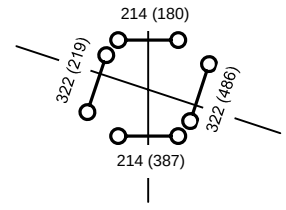


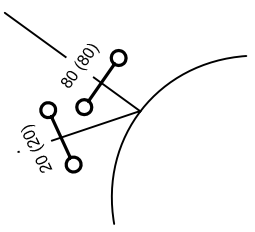


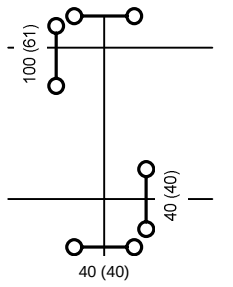


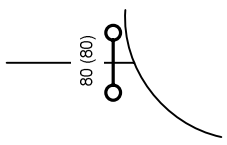


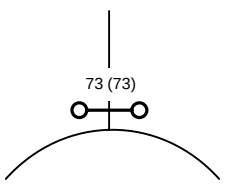


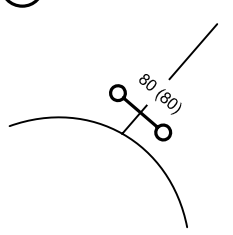


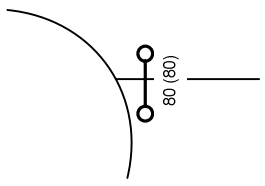


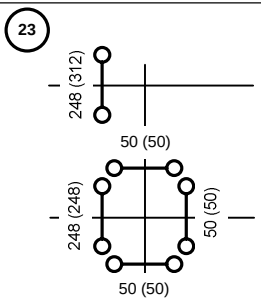


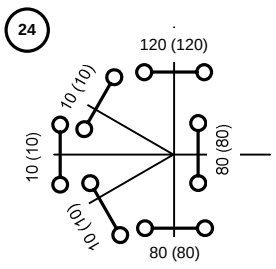


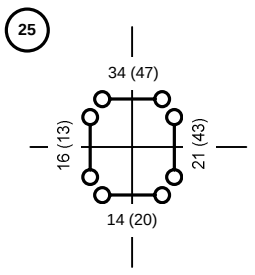


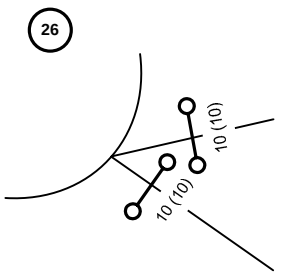


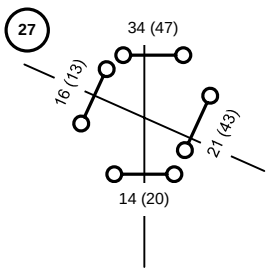


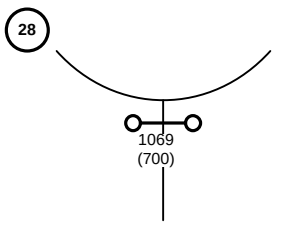


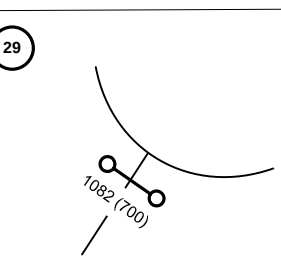


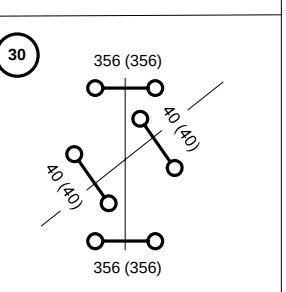


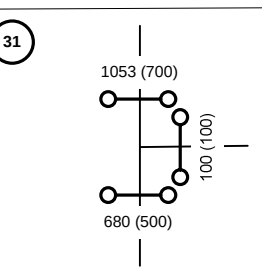


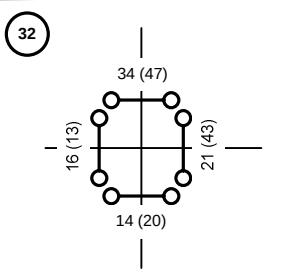


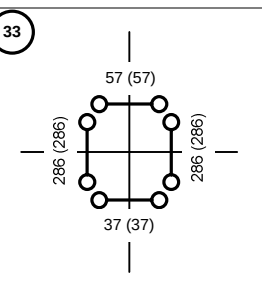


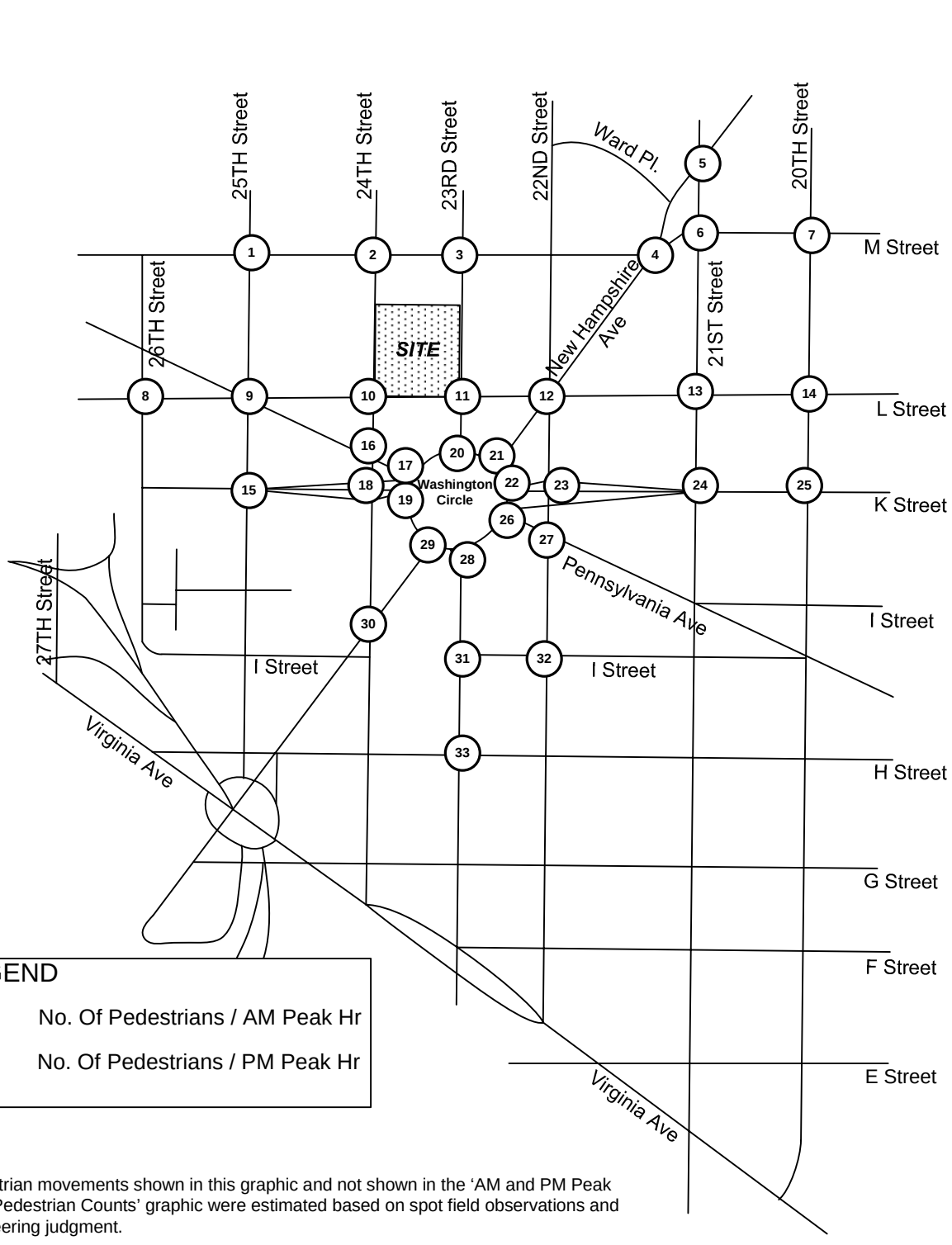












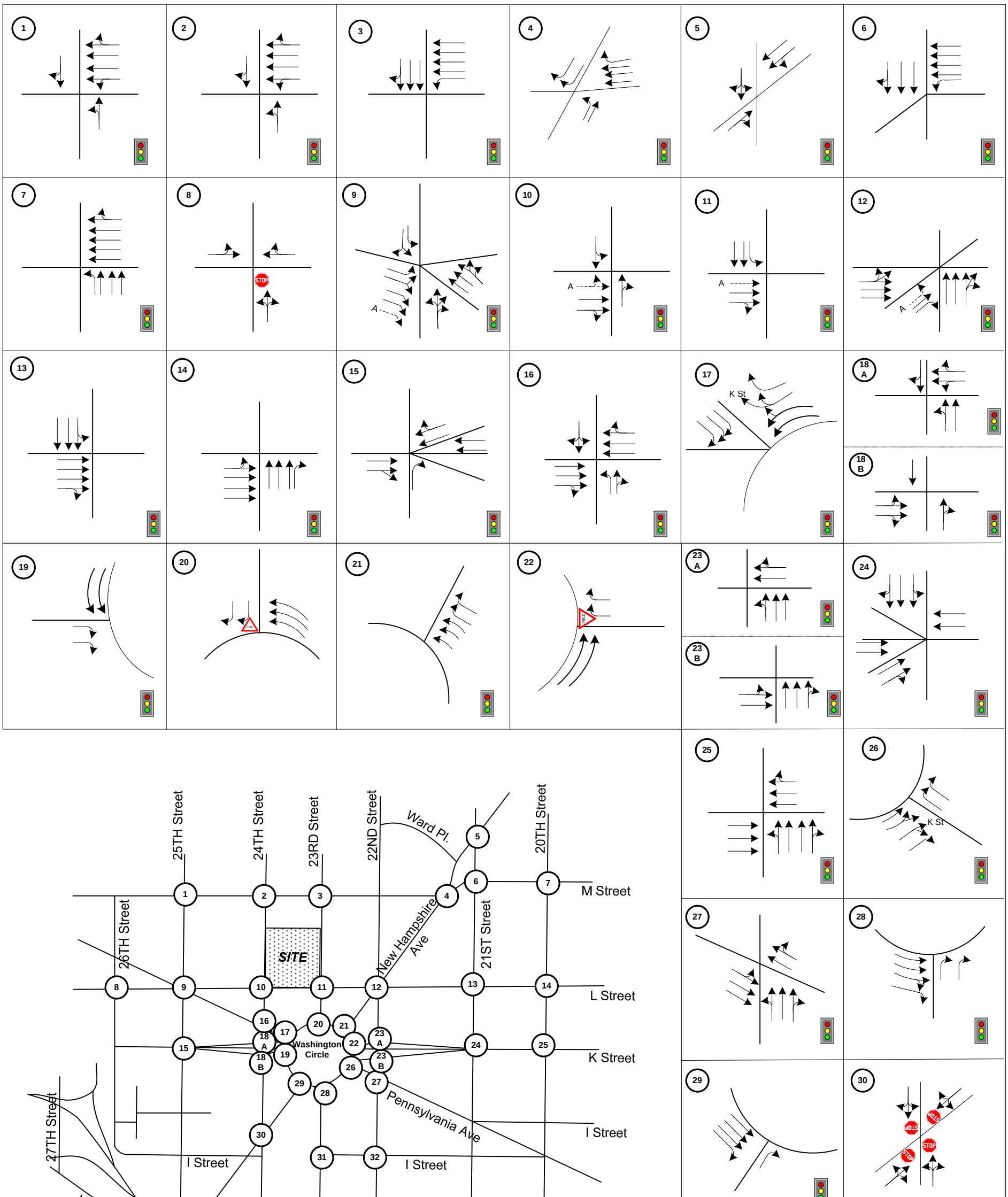
LEGEND

385 No. Of Pedestrians / AM Peak Hr

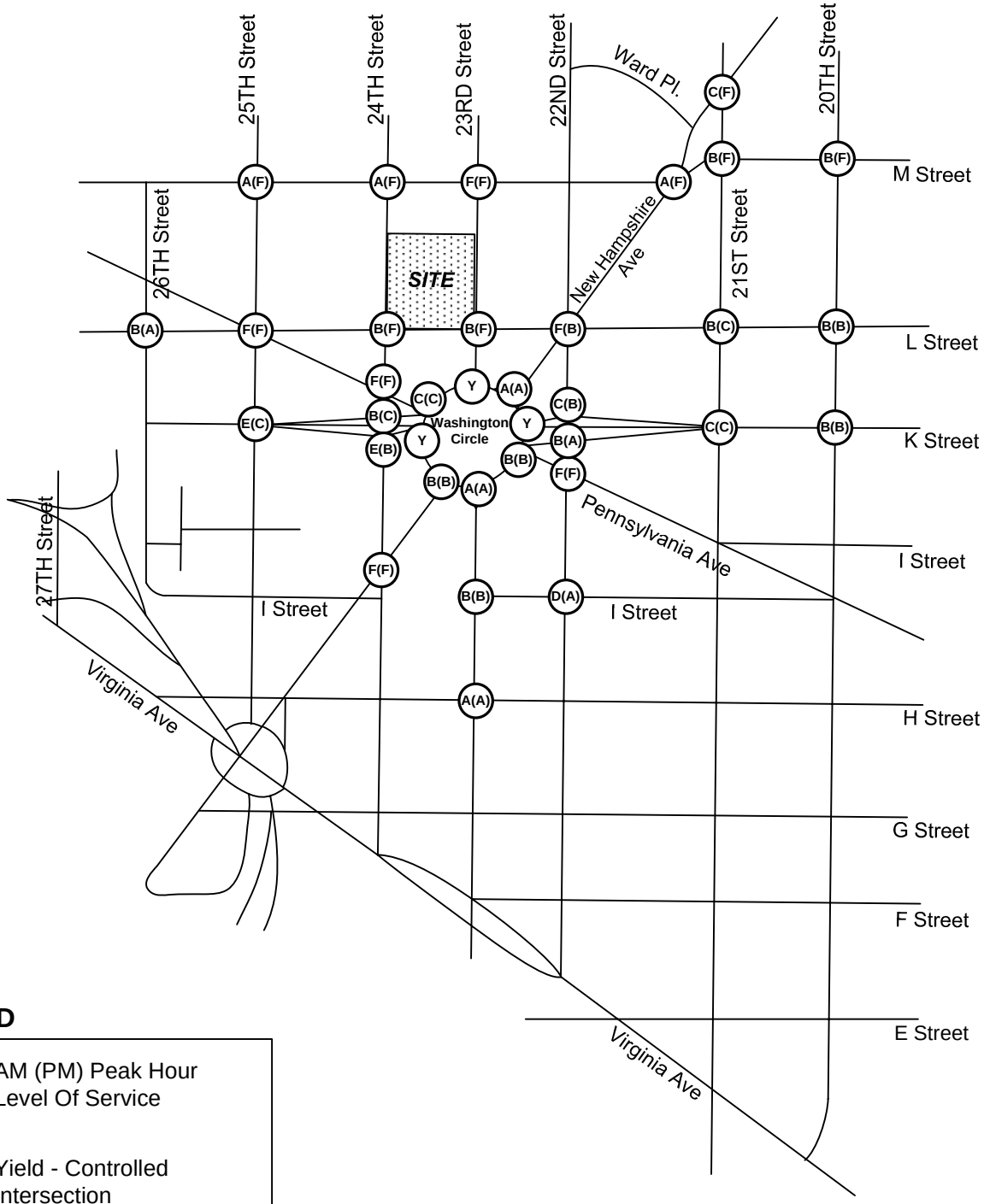
(46) No. Of Pedestrians / PM Peak Hr

Note:
Pedestrian movements shown in this graphic and not shown in the 'AM and PM Peak Hour Pedestrian Counts' graphic were estimated based on spot field observations and engineering judgment.

Not to Scale	N	**Square 37 Rezoning**	**AM and PM Peak Hour Pedestrian Movements used in the SYNCHRO Model**	**FIGURE 7**
September, 2002				



Not to Scale		Square 37 Rezoning	Existing (2002) Peak Period Lane Configurations	FIGURE 8
September, 2002	N			



LEGEND

A(A) AM (PM) Peak Hour Level Of Service

Y Yield - Controlled Intersection

Not to Scale		Square 37 Rezoning	Intersection Levels of Service for Existing (2002) Conditions	FIGURE 9
September, 2002	N			

EXISTING TRANSPORTATION ISSUES AND PROPOSED IMPROVEMENTS

In addition to conducting the traffic assessments with the use of the SYNCHRO computerized transportation model, the Study Team reviewed correspondence from citizens and citizen groups, and conducted field evaluations to assess existing conditions. In addition to congested operations at the intersections currently working at LOS F, shown in Figure 9, the Study Team identified a number of issues at locations throughout the study area.

The locations where issues were identified are shown in Figure 10. Figure 11 shows the recommended improvements proposed to address the identified issues and to enhance traffic operations in the study area.

Initially, the Study Team developed a list of potential improvements that could be implemented to address the existing deficiencies. The Study Team evaluated these preliminary improvement options and developed recommendations. The following is a discussion of the issues, evaluation of preliminary improvement options, and the recommended improvements.

Issue:

1. Speeding on 20th Street

Preliminary Improvement(s):

- Post speed limit signs on 20th Street.

Evaluation:

- Speed limit signs will reinforce the 25 mph speed limit on 20th Street and should reduce speeding.

Recommendation:

- Install speed limit signs on 20th Street.

Issue:

2. Fire Station signal between 22nd and 23rd Street currently operating as a pre-timed signal

Preliminary Improvement(s):

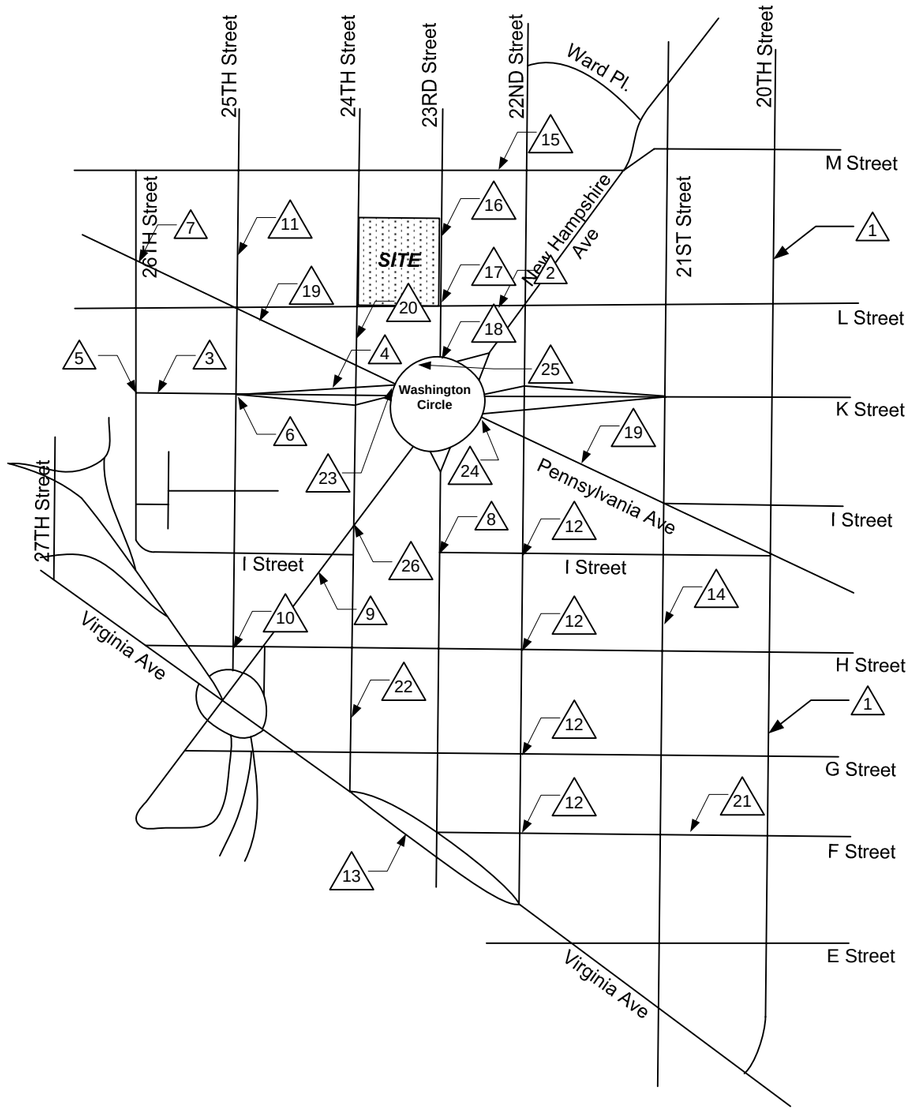
- Operate the traffic signal on flashing yellow when not in use.

Evaluation:

- This signal currently operates as a pre-timed signal, giving unnecessary green time to the fire station, while reducing the capacity and degrading the operation of L Street.

Recommendation:

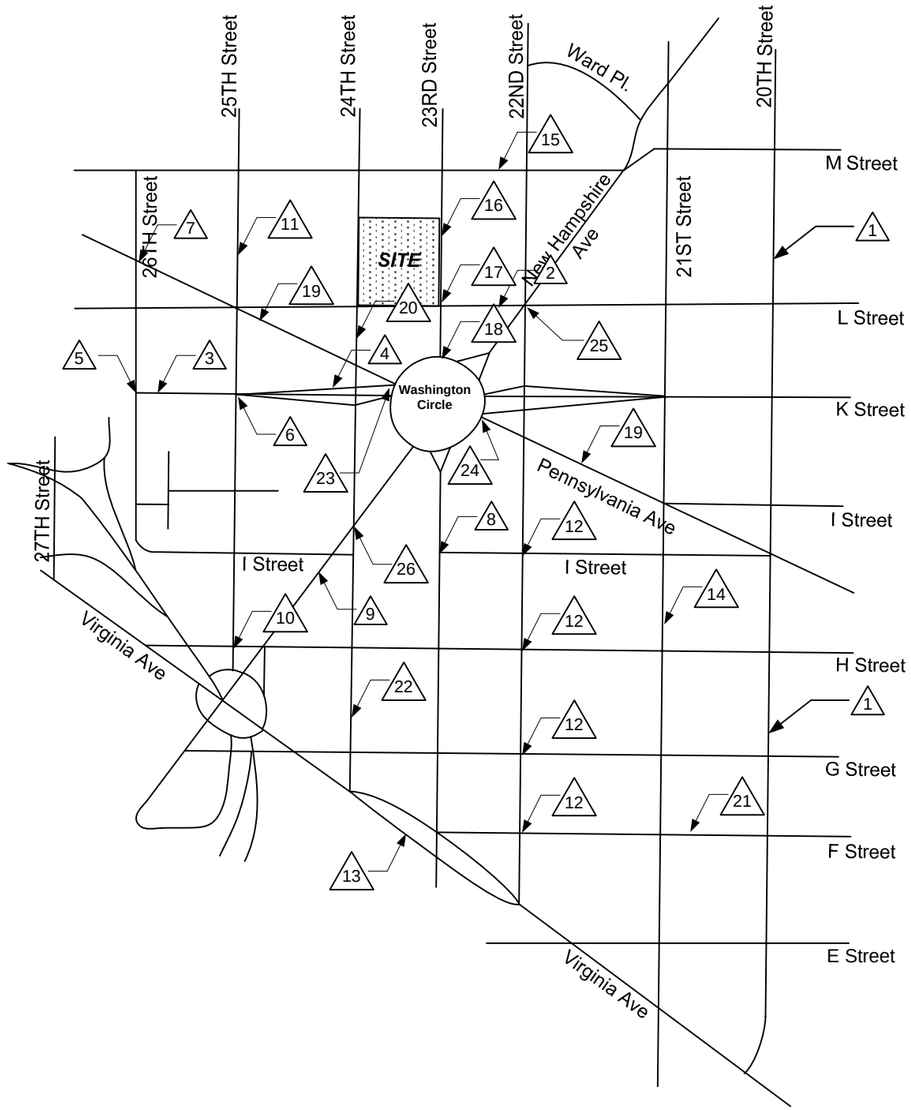
- This signal should operate as a flashing yellow signal on L Street when not in use.



SQUARE 37 REZONING
SUMMARY OF ISSUES

1. Speeding on 20th Street
2. Fire Station signal between 22nd and 23rd Street
3. Speeding on K Street between 26th Street and Washington Circle
4. Illegal parking on the westbound ramp from Washington Circle to K Street
5. Pedestrian Safety at the intersection of K Street and 26th Street
6. Pedestrian Safety at the intersection of K Street and 25th Street
7. Pedestrian Safety at the intersection of Pennsylvania Avenue and 26th Street
8. Congestion and pedestrian safety at Foggy Bottom Metro Station (23rd and I)
9. Congestion and emergency vehicle access on New Hampshire Avenue between Washington Circle and Virginia Avenue
10. Pedestrian safety at New Hampshire Avenue and 25th/H Streets
11. Parking enforcement on 25th Street between L and M Streets
12. Pedestrian safety on 22nd Street at intersections with F, G, H and I Streets
13. Congestion on Virginia Avenue between 20th and 24th Streets
14. Congestion on 21st Street between Virginia Avenue and M Street
15. Congestion on M Street between 20th Street and 23rd Street
16. Congestion on 23rd Street between N Street and Washington Circle
17. Traffic operations on 23rd Street at L Street
18. Traffic operations on 23rd Street at Washington Circle
19. Parking violations along Pennsylvania Avenue
20. Parking violations on 24th Street between Pennsylvania Avenue and L Street
21. Parking enforcement on F Street between 20th and 22nd Streets
22. Parking enforcement on 24th Street between G and H Streets
23. Safety of traffic operations at Pennsylvania Avenue Northwest and the Washington Circle
24. Safety of traffic operations at Pennsylvania Avenue Southeast and the Washington Circle
25. Heavy Congestion at Washington Circle
26. Congestion at 24th Street and New Hampshire Avenue

Not to Scale		Square 37 Rezoning	Existing Conditions Issues Map	FIGURE 10
September, 2002	N			



SUMMARY OF IMPROVEMENT OPTIONS TO ADDRESS EXISTING CONDITIONS

1. Install speed limit signs on 20th Street.
2. This signal should operate as a flashing yellow signal on L Street when not in use.
3. Increase enforcement of speeding in this section of K Street.
4. Increase parking enforcement. Provide a parking enforcement contact phone number for motorists.
5. Re-stripe the crosswalk. Three seconds should be added to the flashing DON'T WALK phase of this pedestrian signal to provide additional clearance time for crossing the street.
6. Re-stripe the crosswalk and install crosswalk sign on the median.
7. Re-stripe the crosswalk. Replace the damaged signal head at this location. Install pedestrian signal at this location. Provide four-second advance walk phase on 26th Street.
8. Implement the following: prohibiting vendor parking, prohibiting westbound right turns on red, re-striping the crosswalks and enforcing pedestrian crossing laws.
9. Stricter enforcement of existing parking regulations.
10. Enhance and re-place crosswalks. Extend centerline of 25th/H Streets at New Hampshire Avenue.
11. Replace missing sign.
12. Implement the following: re-stripe all crosswalks, enforce parking restrictions and enforce pedestrian crossing laws
13. Enforce peak period and tour bus parking regulations.
14. Enforce parking regulations.
15. Enforce parking regulations.
16. Signalize the intersection of 23rd Street and Washington Circle, Street to shared through/left, and increased enforcement of parking regulations. After signalization use a three lane approach at the circle. Construct fourth lane on 23rd Street between N and L Streets.
17. Prior to signalization of 23rd Street and Washington Circle, add a pavement marking arrow and “ONLY” legend at this location.
18. Prior to signalization of 23rd Street and Washington Circle, re-stripe lane control markings.
19. Enforce parking regulations.
20. Enforce parking regulations, including diplomat parking.
21. Install “No Double Parking” signs and enforce parking restrictions.
22. Install “No Double Parking” signs and enforce parking restrictions.
23. Signalize intersection of Pennsylvania Avenue Northwest and the Washington Circle.
24. Signalize intersection of Pennsylvania Avenue Southeast and the Washington Circle.
25. Change New Hampshire Avenue to two-way operation from Washington Circle to M Street.
26. Signalize Intersection of 24th Street and New Hampshire Avenue.

Not to Scale	N	Square 37 Rezoning	Recommended Improvements to Address Existing Transportation Issues	FIGURE 11
September, 2002				

Issue:

3. Speeding on K Street between 26th Street and Washington Circle

Preliminary Improvement(s):

- Increase speed enforcement on K Street during off-peak hours.

Evaluation:

- Increased enforcement of speeding will reduce vehicular speeds.

Recommendation:

- Increase enforcement of speeding in this section of K Street.

Issue:

4. Illegal parking on the westbound ramp from Washington Circle to K Street

Preliminary Improvement(s):

- Increase parking enforcement on this ramp during the PM peak period.
- Post signs with telephone number to report illegally parked cars during the PM peak period.

Evaluation:

- Illegally parked cars can be found on this ramp nearly every day during the PM peak period. One car parked on the ramp can cause traffic to queue up the ramp, through Washington Circle and continue on to 23rd Street. Increased parking enforcement will quickly remove illegally parked cars and allow for increased traffic flow. It will also dissuade people from parking at this location during this time period. Strict parking enforcement can improve network performance by as much as 20 percent.
- Providing a number that motorists can call will speed the response time of parking enforcement officers and tow trucks.

Recommendation:

- Increase parking enforcement.
- Provide a parking enforcement contact phone number for motorists.

Issue:

5. Pedestrian Safety at the intersection of K Street and 26th Street

Preliminary Improvement(s):

- Re-stripe the crosswalk.
- Add more time to the pedestrian signal across K Street.

Evaluation:

- Re-striping the crosswalk will improve pedestrian safety by making its location clearer to motorists, who often stop over the crosswalk while queued approaching 27th Street.
- Currently, there is not enough time for pedestrians to cross K Street at this location.

Recommendation:

- Re-stripe the crosswalk.
- Three seconds should be added to the flashing DON'T WALK phase of this pedestrian signal to provide additional clearance time for crossing the street.

Issue:

6. Pedestrian Safety at the intersection of K Street and 25th Street

Preliminary Improvement(s):

- Re-stripe the crosswalk.
- Install crosswalk sign on the median.

Evaluation:

- Re-striping the crosswalk will improve pedestrian safety by making its location clearer to motorists.
- A crosswalk sign in the median would provide better information for drivers and pedestrians.

Recommendation:

- Re-stripe the crosswalk.
- Install crosswalk sign on the median.

Issue:

7. Pedestrian Safety at the intersection of Pennsylvania Avenue and 26th Street

Preliminary Improvement(s):

- Re-stripe northwest-bound crosswalk on Pennsylvania Avenue.
- Replace damaged signal head that controls Pennsylvania Avenue.
- Add pedestrian signal to cross 26th Street north of Pennsylvania at the northeast traffic signal pole.
- Add four-second advance walk phase for pedestrian traffic across Pennsylvania Avenue.

Evaluation:

- Re-striping the crosswalk will improve pedestrian safety by making its location clearer to motorists.
- This signal head is in disrepair and should be replaced.
- There is no pedestrian signal to indicate when it is safe to cross Pennsylvania Avenue in this location.
- Adding this protected walk phase will allow pedestrians to safely begin to cross Pennsylvania Avenue before 26th Street traffic – particularly northbound right turns – begins.

Recommendation:

- Re-stripe the crosswalk.
- Replace the signal head at this location.
- Install pedestrian signal at this location.
- Provide four-second advance walk phase on 26th Street.

Issue:

8. Congestion and pedestrian safety at Foggy Bottom Metro Station (23rd and I Streets)

Preliminary Improvement(s):

- Prohibit vendor parking/standing in front of Metro station.
- Prohibit westbound right turns on red.
- Restripe crosswalk.

- Enforce pedestrian crossing laws.

Evaluation:

- Vendors currently load and unload directly in front of the entrance to the Metro station and in the intersection, contributing to the congestion in the area.
- Due to the Metro station, there is a heavy volume of pedestrian traffic crossing 23rd Street at this location. Prohibiting westbound right turns on red will increase pedestrian safety.
- The crosswalks at this intersection are in poor condition. Re-striping them will increase visibility and pedestrian safety.
- In addition to the crosswalks, pedestrians tend to cross this intersection in the middle of the intersection, mid-block and against traffic. Enforcement of pedestrian crossing laws will reduce pedestrian-vehicle conflicts, improve safety and reduce congestion.

Recommendation:

- Implement all the preliminary improvements recommended above, i.e. prohibiting vendor parking, prohibiting westbound right turns on red, re-striping the crosswalks and enforcing pedestrian crossing laws.

Issue:

9. Congestion and emergency vehicle access on New Hampshire Avenue between Washington Circle and Virginia Avenue

Preliminary Improvement(s):

- Enforce existing parking regulations.
- Prohibit peak period parking.

Evaluation:

- As shown in Figure 12, this section of New Hampshire Avenue is one lane in each direction, with two hour parking allowed on both sides between 7 AM - 8:30 PM. There are also wide sidewalks and a wide, tree-lined median. When traffic is congested and parking is utilized at or near capacity, emergency vehicle access is difficult. Double-parking is also a problem in that it blocks the only travel lane. Stricter enforcement of parking regulations should solve some of these problems.
- The intersection of 24th Street and New Hampshire Avenue was analyzed with two lanes in each direction during the AM and PM peak hours. Two-lane operation during the peak hours could be accomplished with peak period parking prohibition. The overall intersection level of service remained at LOS F, indicating that adding an additional lane would not solve the capacity problems at this all-way stop controlled intersection with heavy pedestrian volume. Additionally, eliminating peak hour parking would cause a great inconvenience to this predominantly residential area.
- Elimination of parking or trees in the median would have a negative impact on this largely residential street and is not recommended as a solution to provide emergency vehicle access.

Figure 12
Lane Usage on New Hampshire Avenue South of Washington Circle

Recommendation:

- Stricter enforcement of existing parking regulations.
- The elimination of parking during peak periods is not recommended.

Issue:

10. Pedestrian safety at New Hampshire Avenue and 25th/H Streets

Preliminary Improvement(s):

- Enhance and restripe crosswalks.
- Extend double yellow centerline on 25th/H Streets at New Hampshire Avenue.

Evaluation:

- Due to the irregular geometry of these intersections, sight distance is extremely limited. All crosswalks should be re-placed and enhanced with parallel lines along their entire lengths.
- The double yellow line should be extended through the curve on 25th Street to increase vehicular safety.

Recommendation:

- Enhance and re-place crosswalks. Extend centerline.

Issue:

11. Parking enforcement on 25th Street between L and M Streets

Preliminary Improvement(s):

- Replace missing parking restriction signs on west side of 25th Street, close to L Street.

Evaluation:

- The sign has been removed from the pole at this location.

Recommendation:

- Replace missing sign.

Issue:

12. Pedestrian safety on 22nd Street at intersections with F, G, H and I Streets

Preliminary Improvement(s):

- Re-stripe crosswalks.
- Enforce parking restrictions.
- Enforce pedestrian crossing laws.

Evaluation:

- The crosswalks at these intersections are in poor condition. Re-striping them will improve visibility and pedestrian safety.
- Vehicles were observed parked across crosswalks, hindering the ability of pedestrians to cross the street.
- In addition to crosswalks, pedestrians tend to cross these intersections in the middle of the intersections, mid-block and against traffic. Enforcement of pedestrian crossing laws will reduce pedestrian-vehicle conflicts, improve safety and reduce congestion.

Recommendation:

- Implement all the preliminary improvements listed above, i.e. re-stripe all crosswalks, enforce parking restrictions and enforce pedestrian crossing laws.

Issue:

13. Congestion on Virginia Avenue between 20th and 24th Streets

Preliminary Improvement(s):

- Enforce peak period parking restrictions.
- Prohibit tour bus idling, except in designated locations.

Evaluation:

- Virginia Avenue is a major arterial connecting Constitution Avenue and Rock Creek Parkway. It also serves Whitehurst Freeway and the E Street Expressway. Peak hour parking restrictions are essential to reduce congestion and increase capacity. Greater enforcement of existing parking restrictions and regulations should reduce the amount of congestion in this area.
- Illegal tour bus parking is another large cause of congestion and reduced capacity. Tour bus parking regulations should be enforced more strictly.

Recommendation:

- Enforce peak period and tour bus parking regulations.

Issue:

14. Congestion on 21st Street between Virginia Avenue and M Street

Preliminary Improvement(s):

- Improve signal timings.
- Enforce peak hour parking restrictions.

Evaluation:

- Existing signal timings have been evaluated and found to be optimal for existing traffic volumes.
- Greater enforcement of parking regulations is required to fully maximize the capacity of this roadway. Strict parking enforcement can improve network performance by as much as 20 percent.

Recommendation:

- Enforce parking regulations.
- The retiming of the signal is not recommended.

Issue:

15. Congestion on M Street between 20th Street and 23rd Street

Preliminary Improvement(s):

- Create second left turn lane at 23rd Street.
- Improve signal timings.
- Enforce peak hour parking restrictions.

Evaluation:

- The creation of a second left turn lane at 23rd Street would allow more cars to turn left per cycle at this intersection, reducing congestion in this section of M Street. However, it would greatly add to the existing congestion on 23rd Street. Traffic would end up being queued through this intersection, thereby eliminating any benefit of the additional turning lane.
- Existing signal timings have been evaluated and found to be optimal for existing traffic volumes.
- Greater enforcement of parking regulations is required to fully maximize the capacity of this roadway. Strict parking enforcement can improve network performance by as much as 20 percent.

Recommendation:

- Enforce parking regulations.
- The addition of a second left turn lane from M Street to 23rd Street is not recommended.
- The retiming of the traffic signal is not recommended.

Issue:

16. Congestion on 23rd Street between N Street and Washington

Preliminary Improvement(s):

- Improve signal timings.
- Signalize the intersection of 23rd Street and Washington Circle North.
- Change the operation of the left lane of southbound 23rd Street at L Street to shared through/left.

- Construct a fourth lane on 23rd Street between N and L Streets. Provide three through lanes and one exclusive left turn lane on the southbound approach on 23rd Street at L Street.
- Enforce peak hour parking restrictions.

Evaluation:

- While 23rd Street approaching Washington Circle is the most congested roadway in the study area, existing signal timings have been evaluated and found to be optimal for existing traffic volumes.
- Signalizing the intersection of 23rd Street and Washington Circle will improve traffic operations in the immediate area. It will allow for three lanes of traffic to enter the circle from 23rd Street, thereby increasing capacity. When compared to existing delays, the intersection of 23rd and L Streets will experience a 34 percent decrease in delay per vehicle during the PM peak hour. The intersection of 23rd and M Streets will experience a 13 percent decrease in delay per vehicle during this same period. The effects of this signalization will also be felt at the intersection of 25th and K Streets, where the decrease in delay is expected to be 26 percent. During the AM peak hour, the intersections in this vicinity are currently operating at acceptable levels of service, and the installation of a signal is expected to have a marginal impact on traffic operations.
- If 23rd Street is not widened to four lanes, the intersection of Washington Circle and 23rd Street is signalized and three full lanes are provided between L Street and the circle, then the leftmost southbound lane on 23rd Street should be designated as a shared though/left lane.
- Construction of a fourth southbound lane on 23rd Street between N and L Streets would provide significant relief to the congestion on 23rd Street. While this improvement may be difficult to implement due to negative effects on the existing streetscape elements, including trees and sidewalks, the Study Team found that this improvement is highly desirable to mitigate existing traffic congestion in the vicinity of the rezoning site.
- Greater enforcement of parking regulations is required to fully maximize the capacity of this roadway. Under ideal conditions, with no lane blockages and maximum enforcement of parking violations, a 20 percent improvement in overall, network-wide intersection performance can be expected during the PM peak hour.

Recommendation:

- Signalize the intersection of 23rd Street and Washington Circle North.
- Construct a fourth southbound lane on 23rd Street between N and L Streets. Provide three through lanes and one exclusive left turn lane on the southbound approach of 23rd Street at L Street.
- If the fourth lane on 23rd Street is not constructed and the intersection of 23rd Street and Washington Circle North is signalized, change the operation of the left lane of southbound 23rd Street at L Street to shared through/left.
- Increase enforcement of parking regulations.

Issue:

17. Traffic operations on 23rd Street at L Street

Preliminary Improvement(s):

- In the interim, until the improvements described in issue # 16, described above, are implemented, place "ONLY" and left turn arrow pavement markings in left lane of 23rd Street.

Evaluation:

- The southbound left lane at this intersection was recently converted to a left turn only lane, but it is still being used as a shared left/through lane. Adding a pavement marking arrow and associated "ONLY" legend will reinforce the exclusive left-turn use of this lane.

Recommendation:

- This improvement is not compatible with the recommendations made in Issue 16. However, in the interim, prior to signalization of 23rd Street and Washington Circle, add a pavement marking arrow and "ONLY" legend at this location.

Issue:

18. Traffic operations on 23rd Street at Washington Circle

Preliminary Improvement(s):

- In the interim, until the improvements described in issue # 16, described above, are implemented, re-stripe lane control markings on 23rd Street.

Evaluation:

- Due to traffic using the left lane of 23rd Street at L Street as a through lane, traffic bottlenecks at the entrance to Washington Circle, where only two lanes are provided. The yellow lane control pavement markings at the entrance to Washington Circle should be re-striped to remind drivers that the left lane is not to be used to enter Washington Circle.

Recommendation:

- This improvement is not compatible with the recommendations made in Issue 16. However, in the interim, prior to signalization of 23rd Street and Washington Circle, re-stripe lane control markings.

Issue:

19. Parking violations along Pennsylvania Avenue

Preliminary Improvement(s):

- Enforce existing parking restrictions.

Evaluation:

- The enforcement of existing parking regulations will improve capacity and reduce congestion along Pennsylvania Avenue. Strict parking enforcement can improve network performance by as much as 20 percent.

Recommendation:

- Enforce parking regulations.

Issue:

20. Parking violations on 24th Street between Pennsylvania Avenue and L Street

Preliminary Improvement(s):

- Enforce existing parking restrictions.
- Enforce diplomat only parking zone in front of Spanish Embassy.

Evaluation:

- The enforcement of existing parking regulations will improve capacity and reduce congestion along 24th Street.
- Non-diplomat vehicles were seen parked in front of the Spanish Embassy. Greater parking enforcement is required to ensure that such illegal parking does not continue.

Recommendation:

- Enforce parking regulations, including diplomat parking.

Issue:

21. Parking enforcement on F Street between 20th and 22nd Streets

Preliminary Improvement(s):

- Install "No Double Parking" signs.
- Enforce existing parking regulations.

Evaluation:

- Numerous parking violations, including several instances of double parking, were seen on F Street between 20th and 22nd Streets. "No Double Parking" signs should be installed in these locations.
- Existing parking regulations should be enforced to improve pedestrian safety and vehicular congestion/capacity.

Recommendation:

- Install "No Double Parking" signs and enforce parking restrictions.

Issue:

22. Parking enforcement on 24th Street between G and H Streets

Preliminary Improvement(s):

- Install "no double parking" signs.
- Enforce existing parking regulations.

Evaluation:

- Numerous parking violations, including several instances of double parking, were seen on 24th Street between G and H Streets. "No Double Parking" signs should be installed in these locations.
- Existing parking regulations should be enforced to improve pedestrian safety and vehicular congestion/capacity. Strict parking enforcement can improve network performance by as much as 20 percent.

Recommendation:

- Install "No Double Parking" signs and enforce parking restrictions.

Issue:

23. Safety of traffic operations at Pennsylvania Avenue and Washington Circle northwest quadrant

Preliminary Improvement(s):

- Signalize the intersection of Pennsylvania Avenue and Washington Circle northwest quadrant.

Evaluation:

- On the approach of Pennsylvania Avenue to Washington Circle northwest quadrant, some southeast bound vehicles entering the circle from Pennsylvania Avenue do not yield to traffic already in the circle. Some drivers traveling in the southeast direction approaching the circle see a green light at the intersection of Pennsylvania Avenue and K Street, located less than 70 feet upstream of the circle, and assume that the green indication allows them to enter the circle without yielding to traffic in the circle. This is a safety issue that can be improved with the signalization of the intersection of Pennsylvania Avenue and Washington Circle northwest quadrant.

Recommendation:

- Signalize the intersection of Pennsylvania Avenue and Washington Circle northwest quadrant.

Issue:

24. Safety of traffic operations at Pennsylvania Avenue and Washington Circle southeast quadrant

Preliminary Improvement(s):

- Signalize the intersection of Pennsylvania Avenue and Washington Circle southeast quadrant.

Evaluation:

- On the approach of Pennsylvania Avenue to Washington Circle southeast quadrant, some northwest bound vehicles entering the circle from Pennsylvania Avenue do not yield to traffic already in the circle. Some drivers traveling in the northwest direction approaching the circle see a green light at the intersection of Pennsylvania Avenue and K Street, located less than 70 feet upstream of the circle, and assume that the green indication allows them to enter the circle without yielding to traffic in the circle. This is a safety issue that can be improved with the signalization of the intersection of Pennsylvania Avenue and Washington Circle southeast quadrant.

Recommendation:

- Signalize the intersection of Pennsylvania Avenue and Washington Circle southeast quadrant.

Issue:

25. Heavy congestion at Washington Circle

Preliminary Improvement(s):

- Change New Hampshire Avenue to two-way operation from Washington Circle to M Street. This segment of New Hampshire Avenue currently operates as a one-way street.

Evaluation:

- The Study Team conducted traffic analyses to assess whether or not changing New Hampshire Avenue between Washington Circle and M Street from to two-way operations would have a beneficial effect on traffic operations in the study area. The Study Team found that delays at several intersections along 23rd Street would be reduced during the AM and PM peak hours. Furthermore, the traffic simulation model indicates that overall network delay would be reduced by approximately four percent during the PM peak hour with the change to two-way operations on New Hampshire Avenue. The model indicates that there would be additional delays at the intersection of New Hampshire Avenue and Washington Circle, but even with the increased delays, this intersection is expected to operate at LOS A during the AM peak hour and LOS C during the PM peak hour.

Recommendation:

- Change New Hampshire Avenue to two-way operation from Washington Circle to M Street.

Issue:

26. Congestion at 24th Street and New Hampshire Avenue

Preliminary Improvement(s):

- Signalize the intersection of 24th Street and New Hampshire Avenue. This intersection currently operates with an all-way stop control.

Evaluation:

- This intersection currently operates at LOS F during the AM and PM peak hours. The transportation model indicates that signalization at this intersection would reduce delays significantly during the peak hours.

Recommendation:

- Signalize the intersection of 24th Street and New Hampshire Avenue.

Effects of Proposed Improvements on Existing Conditions

The implementation of the improvements described above will help enhance traffic operations and safety in the study area. Many of the improvements described above have a positive effect on safety but have only a marginal effect on traffic operations.

Several intersections that are currently operating at LOS F during the PM peak hour will operate at adequate LOS with the implementation of the improvements listed above[1]. These intersections include 24th Street and New Hampshire Avenue and 24th Street and M Street. The traffic simulation model indicates that with the implementation of the recommended improvements, overall network delay would be reduced by approximately five percent during the PM peak hour.

[1] Appendix D presents a summary of the estimated levels of service with the proposed improvements.